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HIGH RESOLUTION INDUCTIVE SENSOR ARRAYS FOR MATERIAL AND DEFECT CHARACTERIZATION OF WELDS

RELATED APPLICATIONS

RA 8/12/05 now patent No. US 6727691

5 This application is a divisional of U.S. Application No. 10/046,925, filed January 15, 2002, which is a continuation-in-part of U.S. Application No. 09/891,091, filed June 25, 2001, which claims the benefit of U.S. Provisional Application No. 60/214,177, filed June 26, 2000, U.S. Provisional Application No. 60/248,104, filed November 13, 2000, U.S. Provisional Application No. 60/276,997, filed March 19, 10 2001, U.S. Provisional Application No. 60/277,532, filed March 21, 2001, U.S. Provisional Application No. 60/284,972, filed April 19, 2001, and U.S. Provisional Application No. 60/297,926, filed June 13, 2001. The entire teachings of the above applications are incorporated herein by reference.

15 BACKGROUND

The technical field of this invention is that of nondestructive materials characterization, particularly as it applies to postweld and in-process weld scanning for quality control, in-process monitoring, and seam tracking using spatially periodic field eddy current sensors.

20 There is an increasing need for a nondestructive method for assessing the quality of welds between materials, including the detection and characterization of defects. In particular, friction stir welding is becoming more commonly used as a joining technique for a variety of metals, including aluminum, titanium and nickel base alloys as well as